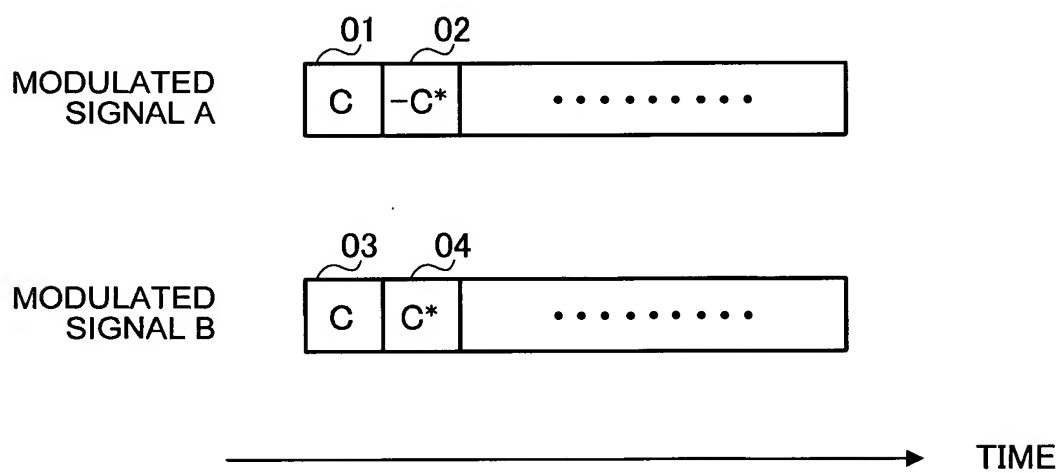


(PRIOR ART)
FIG.1



(PRIOR ART)
FIG.2

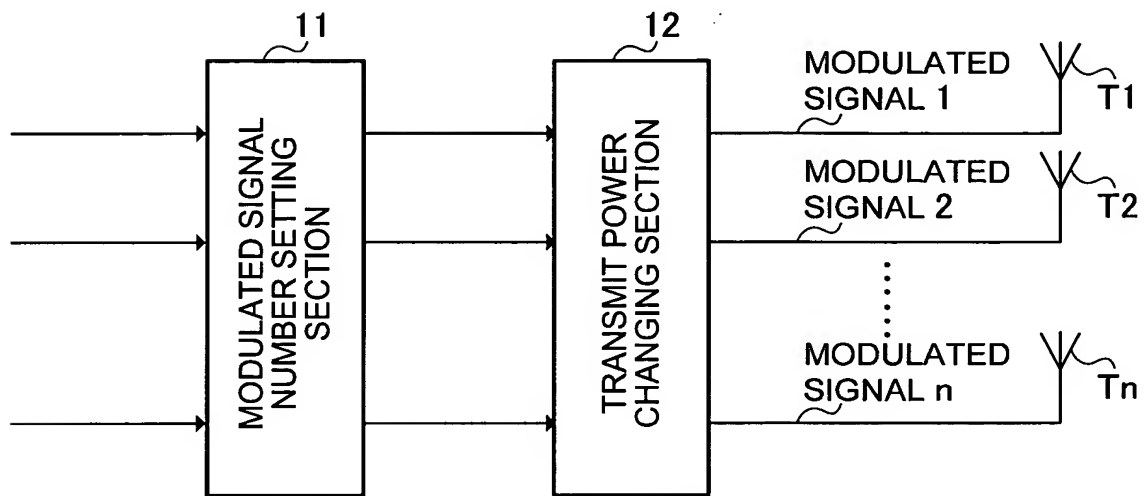
10 RADIO TRANSMITTING APPARATUS

FIG.3

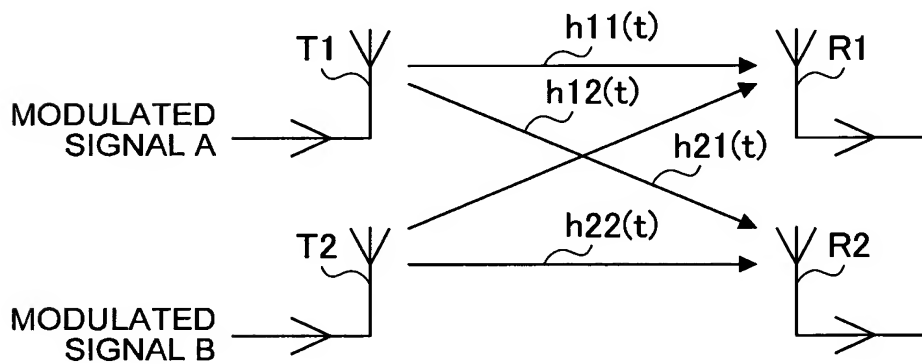


FIG.4

FIG.5A

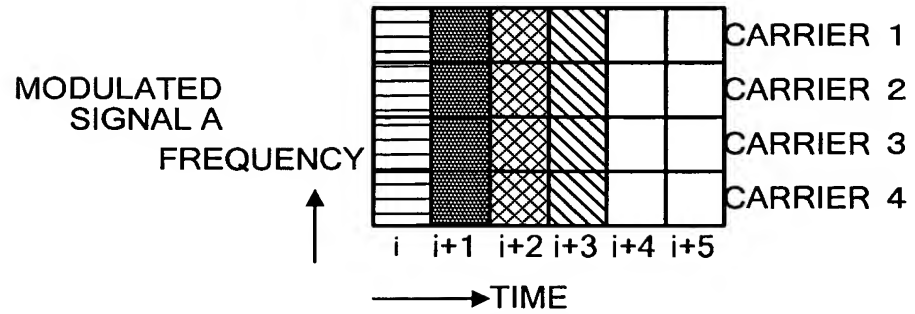
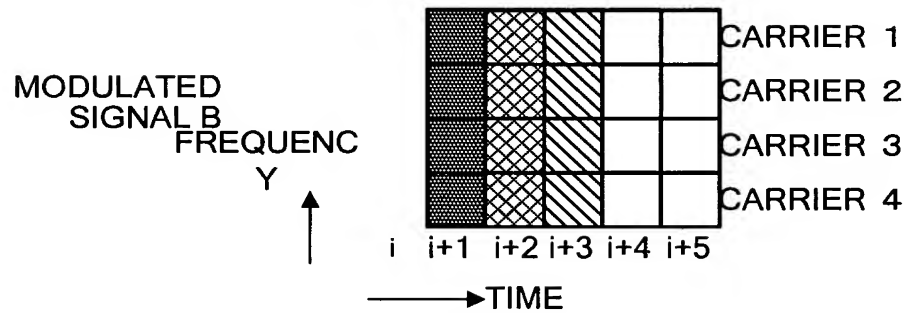







FIG.5B



- | | | |
|---|--|-----------------|
|  | 101: SIGNAL DETECTION SYMBOL | } PILOT SYMBOLS |
|  | 102: CONTROL SYMBOL | |
|  | 103: TRANSMISSION METHOD
INFORMATION SYMBOL | |
|  | 104: RADIO WAVE PROPAGATION
ENVIRONMENT ESTIMATION SYMBOL | |
|  | 105: DATA SYMBOL | |

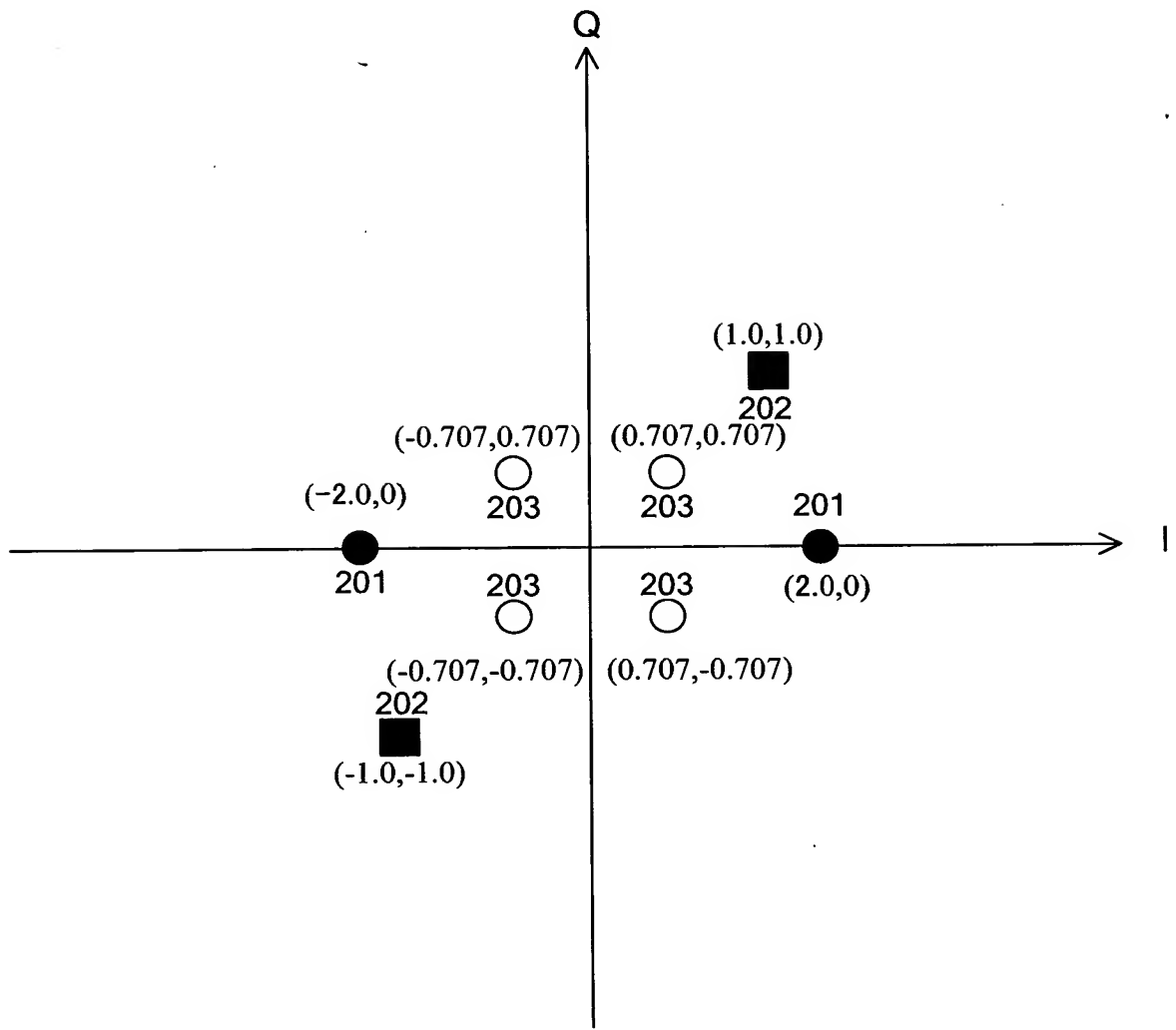


FIG.6

MODULATED SIGNAL A

TIME	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
i	2.0	0	0	0	-2.0	0	0	0
ii	1.0	1.0	-1.0	-1.0	-1.0	-1.0	1.0	1.0
3	-1.0	-1.0	1.0	1.0	1.0	1.0	-1.0	-1.0

FIG.7A

MODULATED SIGNAL B

TIME	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
i								
ii	-1.0	-1.0	1.0	1.0	-1.0	-1.0	1.0	1.0
3	1.0	1.0	-1.0	-1.0	1.0	1.0	-1.0	-1.0

FIG.7B

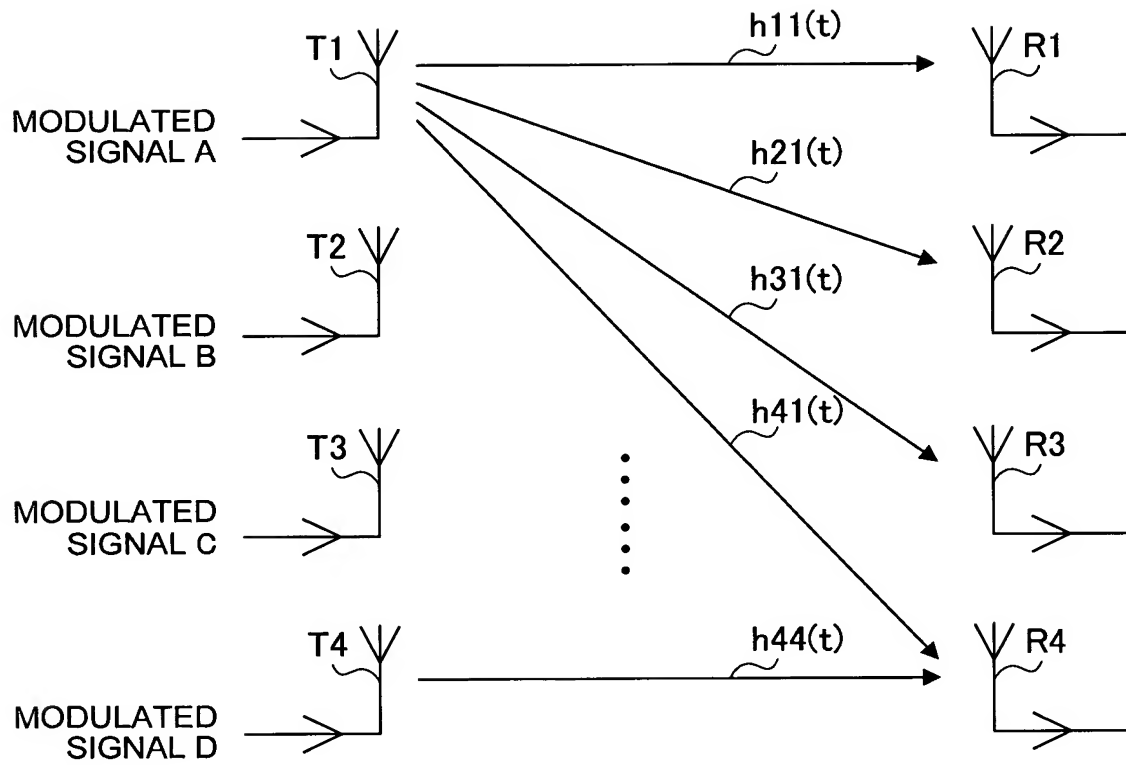


FIG.8

FIG.9A

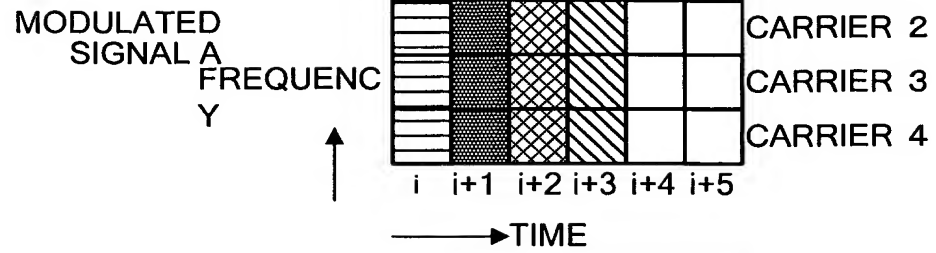


FIG.9B

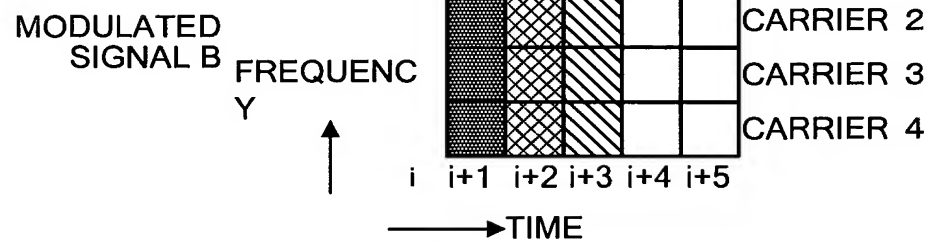


FIG.9C

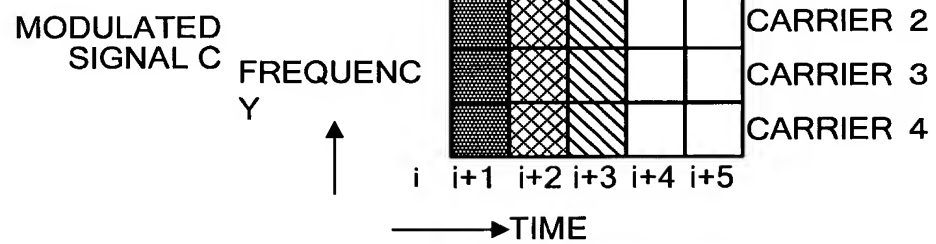
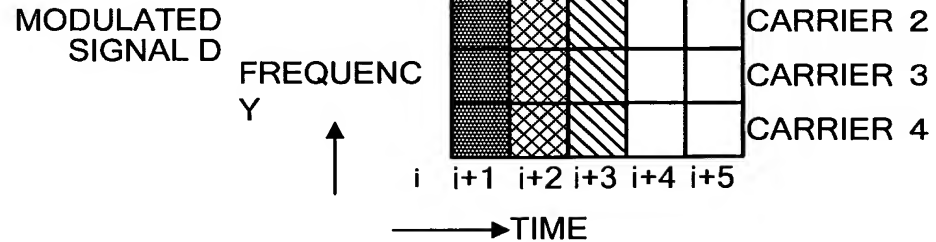







FIG.9D



- | | | |
|---|--|-----------------|
|  | 101: SIGNAL DETECTION SYMBOL | } PILOT SYMBOLS |
|  | 102: CONTROL SYMBOL | |
|  | 103: TRANSMISSION METHOD
INFORMATION SYMBOL | |
|  | 104: RADIO WAVE PROPAGATION
ENVIRONMENT ESTIMATION SYMBOL | |
|  | 105: DATA SYMBOL | |

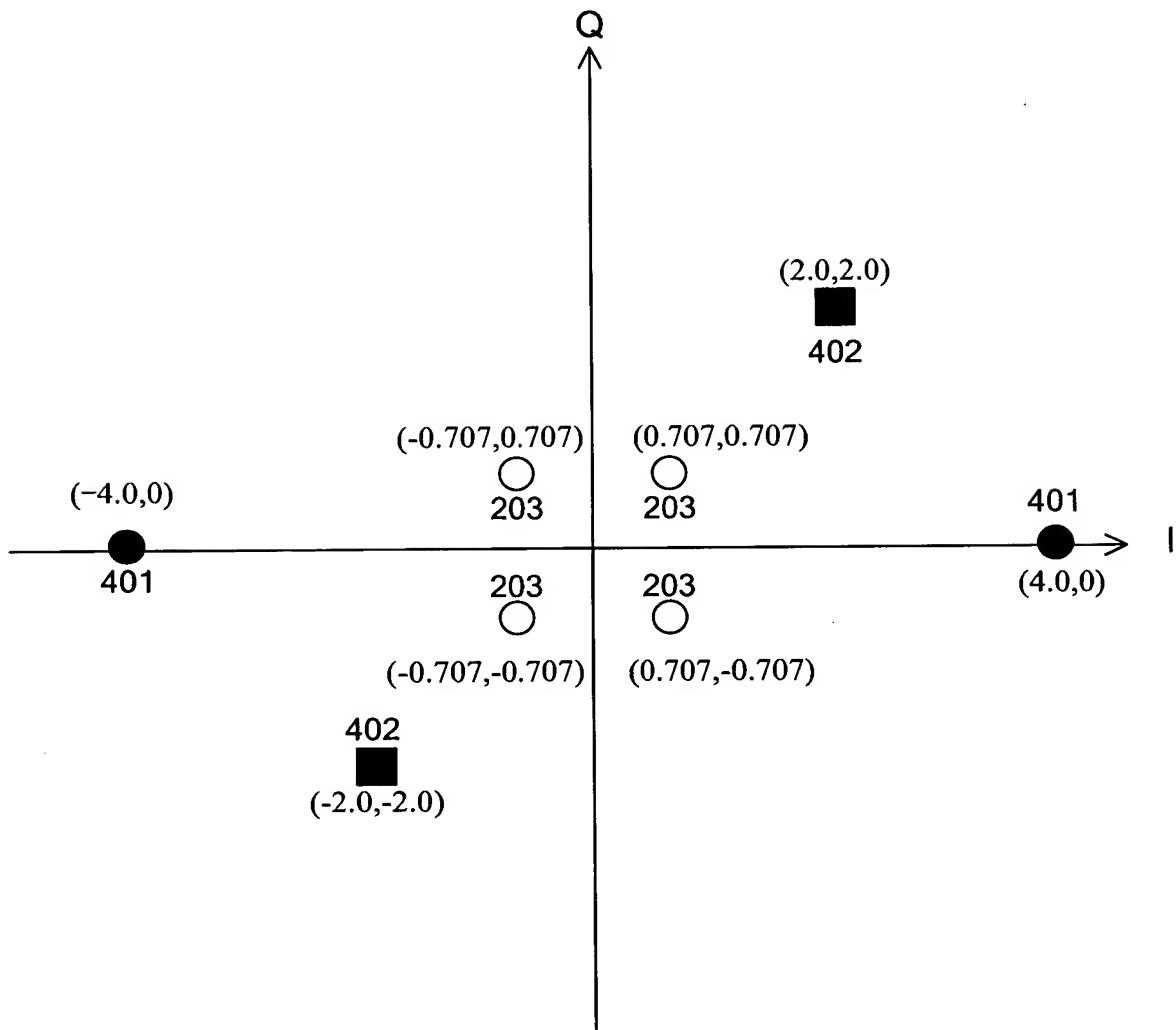


FIG.10

MODULATED SIGNAL A

TIM	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
E	4.0	0	0	0	-4.0	0	0	0
i+1	2.0	2.0	-2.0	-2.0	-2.0	-2.0	2.0	2.0
i+3	-2.0	-2.0	2.0	2.0	2.0	2.0	-2.0	-2.0

FIG.11A

MODULATED SIGNAL B

TIM	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
E								
i+1	-2.0	-2.0	2.0	2.0	-2.0	-2.0	2.0	2.0
i+3	2.0	2.0	-2.0	-2.0	2.0	2.0	-2.0	-2.0

FIG.11B

MODULATED SIGNAL C

TIM	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
E								
i+1	2.0	2.0	-2.0	-2.0	-2.0	-2.0	2.0	2.0
i+3	-2.0	-2.0	2.0	2.0	2.0	2.0	-2.0	-2.0

FIG.11C

MODULATED SIGNAL D

TIM	CARRIER 1		CARRIER 2		CARRIER 3		CARRIER 4	
	I	Q	I	Q	I	Q	I	Q
E								
i+1	-2.0	-2.0	2.0	2.0	-2.0	-2.0	2.0	2.0
i+3	2.0	2.0	-2.0	-2.0	2.0	2.0	-2.0	-2.0

FIG.11D

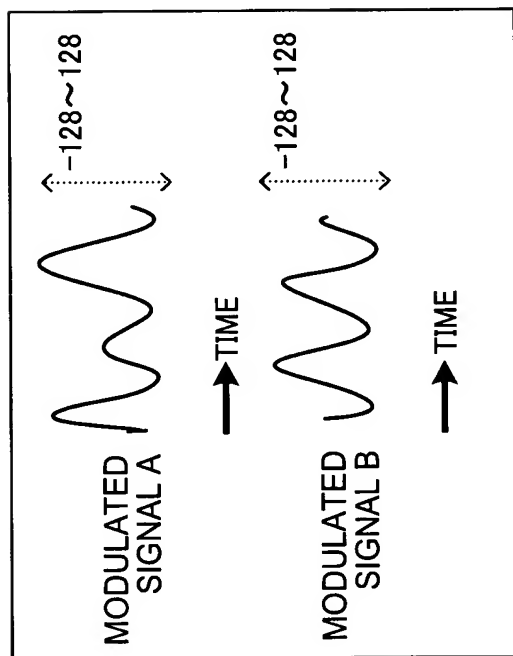


FIG. 12A

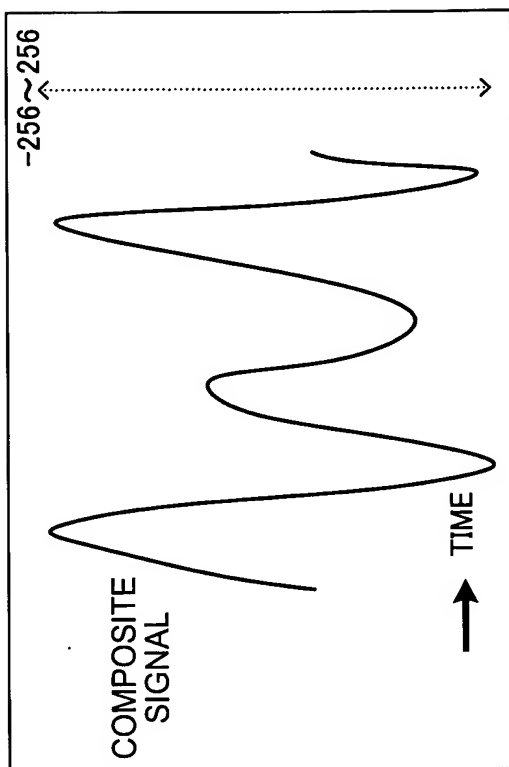


FIG. 12B

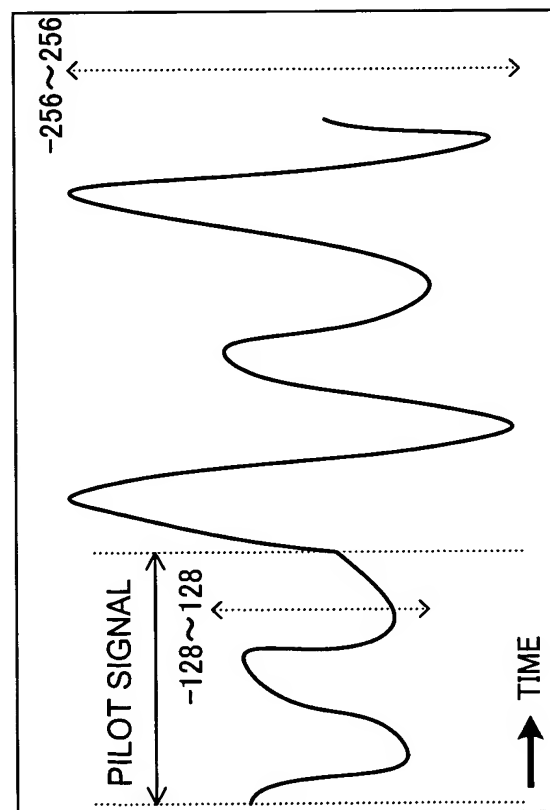


FIG. 12C

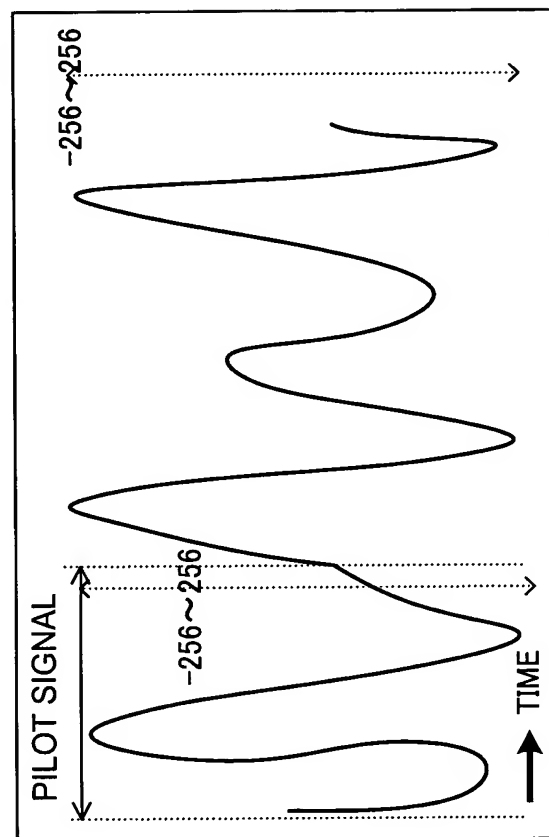


FIG. 12D

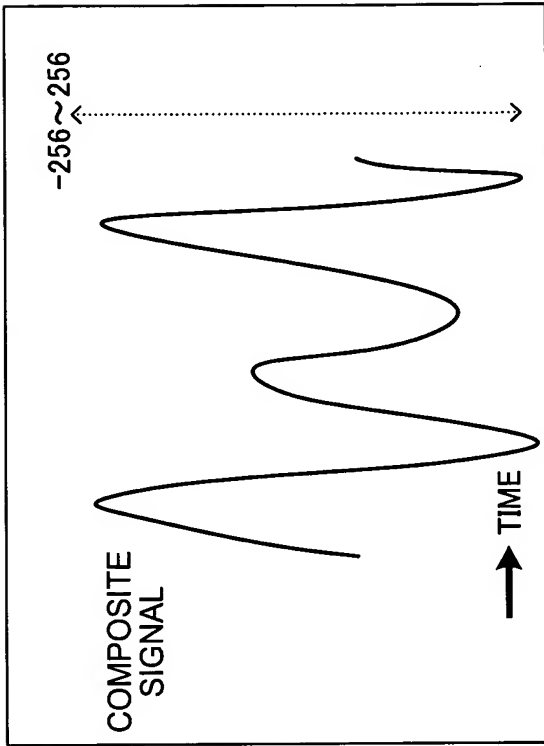
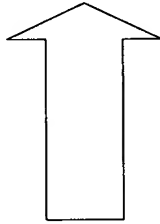
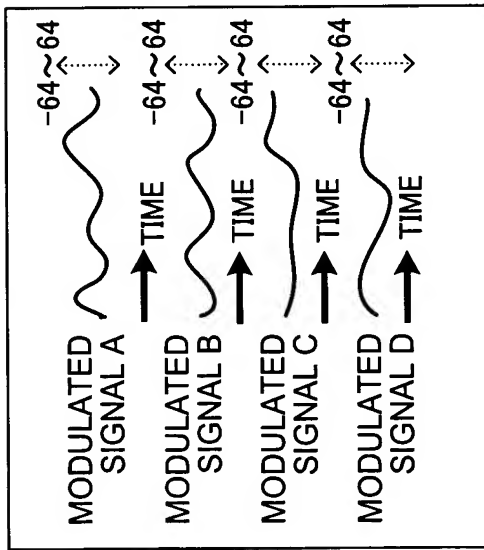


FIG. 13B

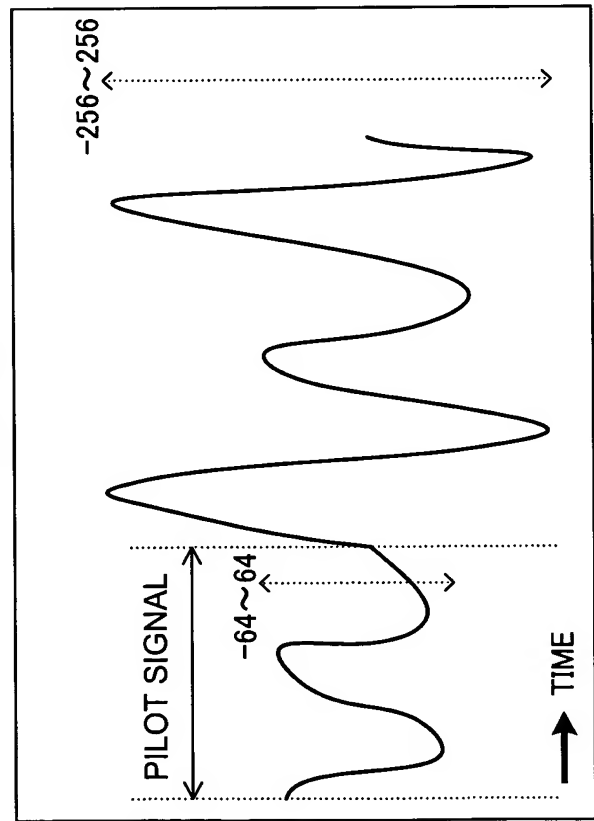


FIG. 13C

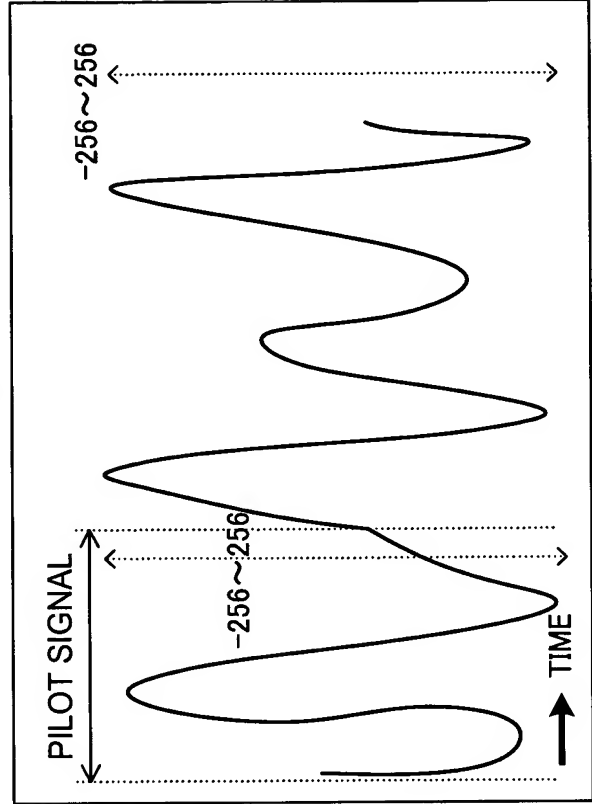


FIG. 13D

500 RADIO TRANSMITTING APPARATUS

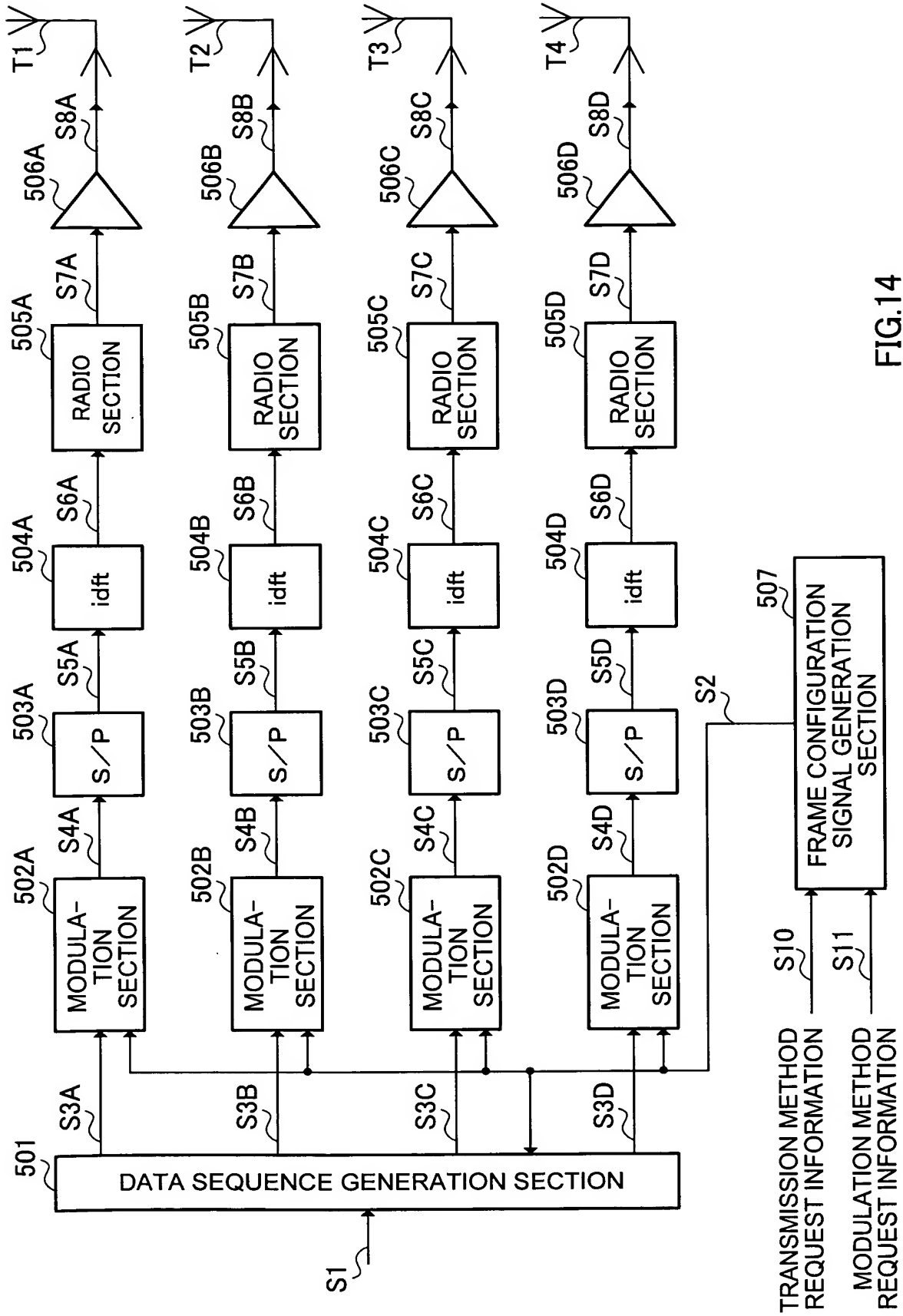


FIG.14

502A (502B~502D)
MODULATION SECTION

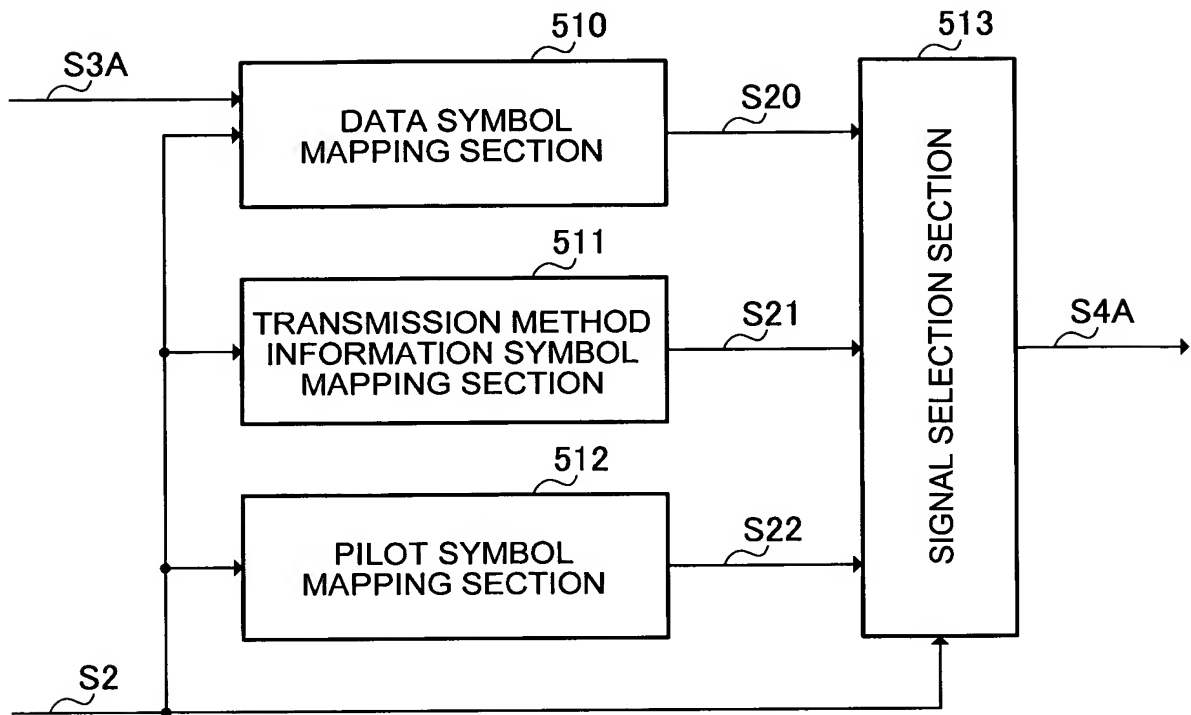


FIG.15

512 PILOT SYMBOL MAPPING SECTION

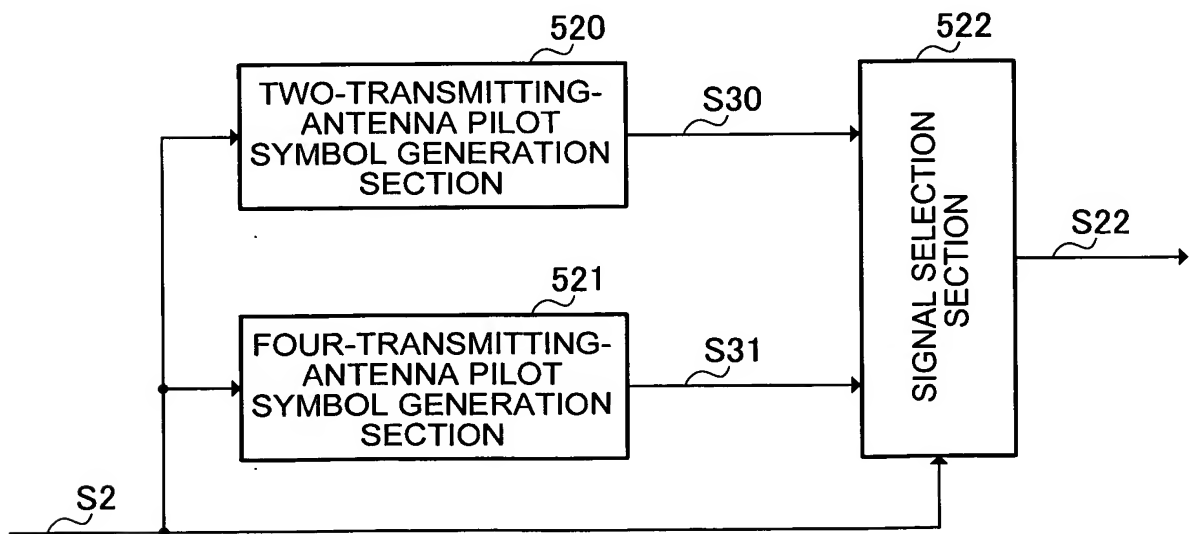


FIG.16

600 RADIO RECEIVING APPARATUS

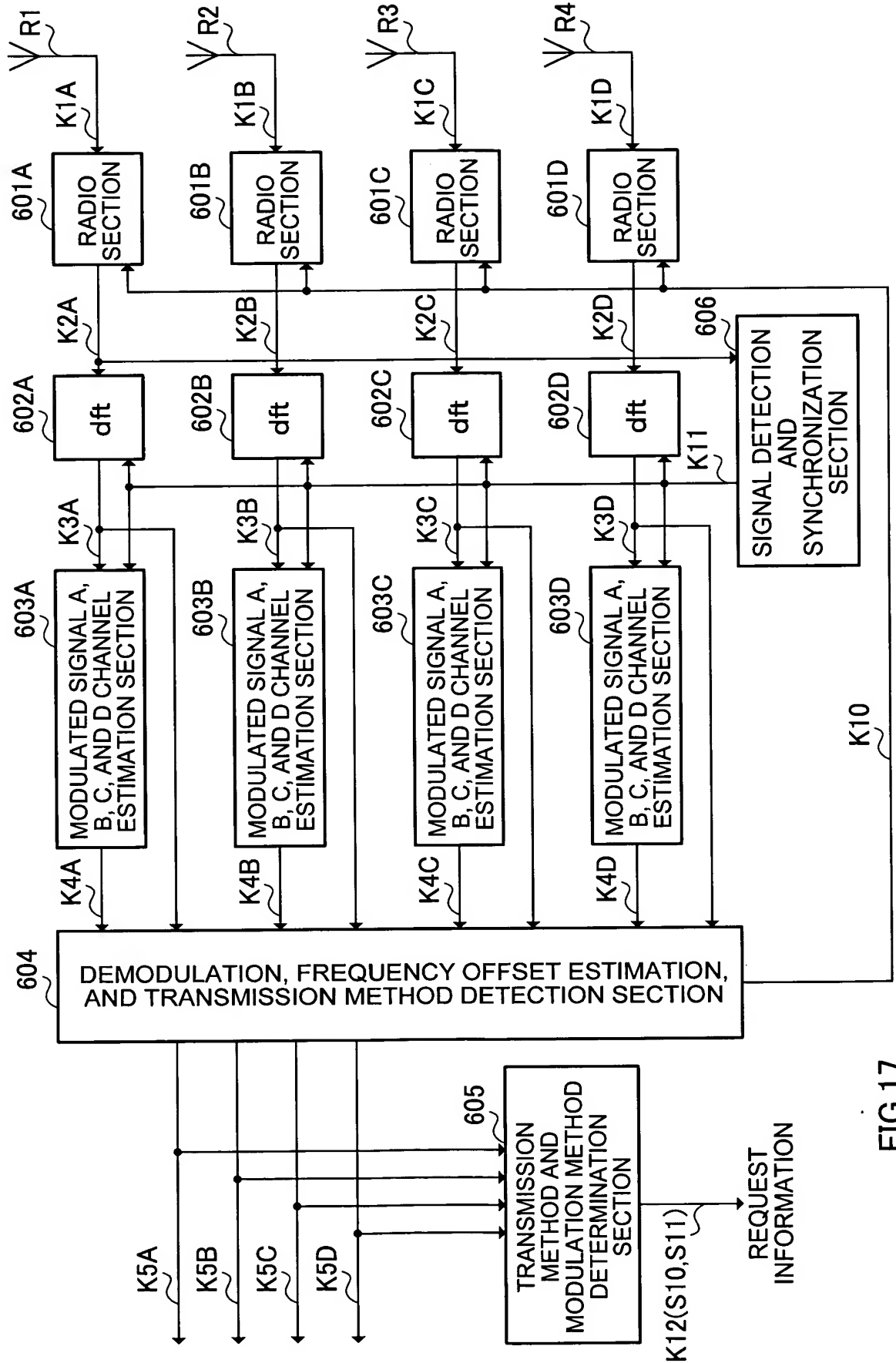


FIG.17

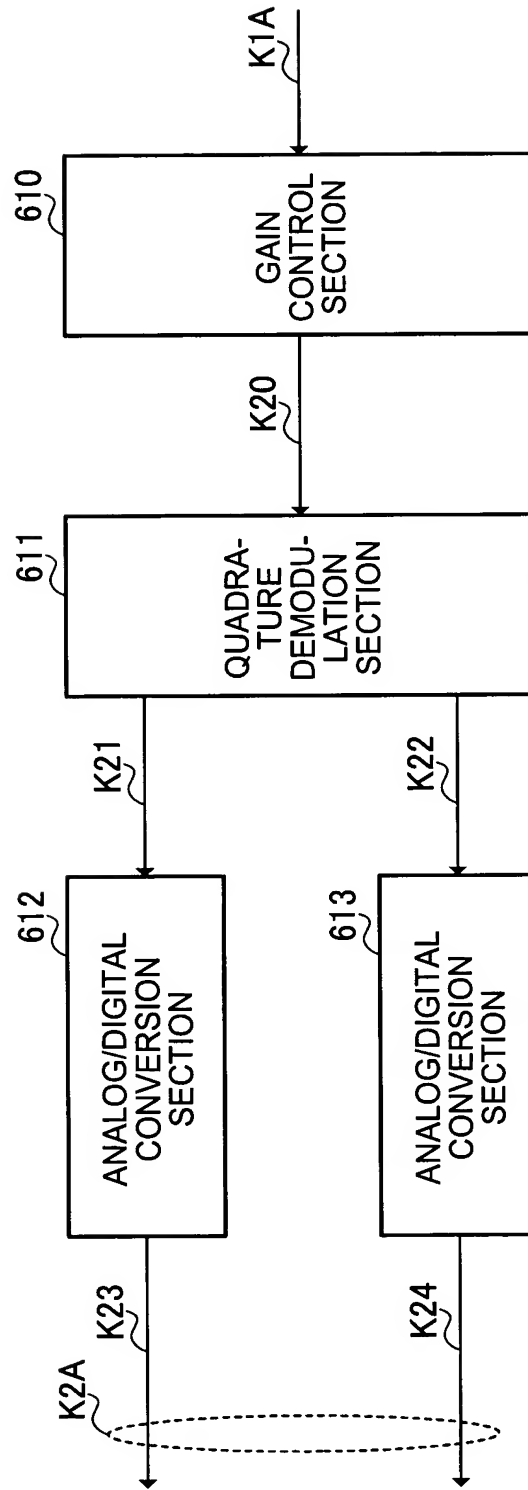
601A (601B~601D) RADIO SECTION

FIG.18

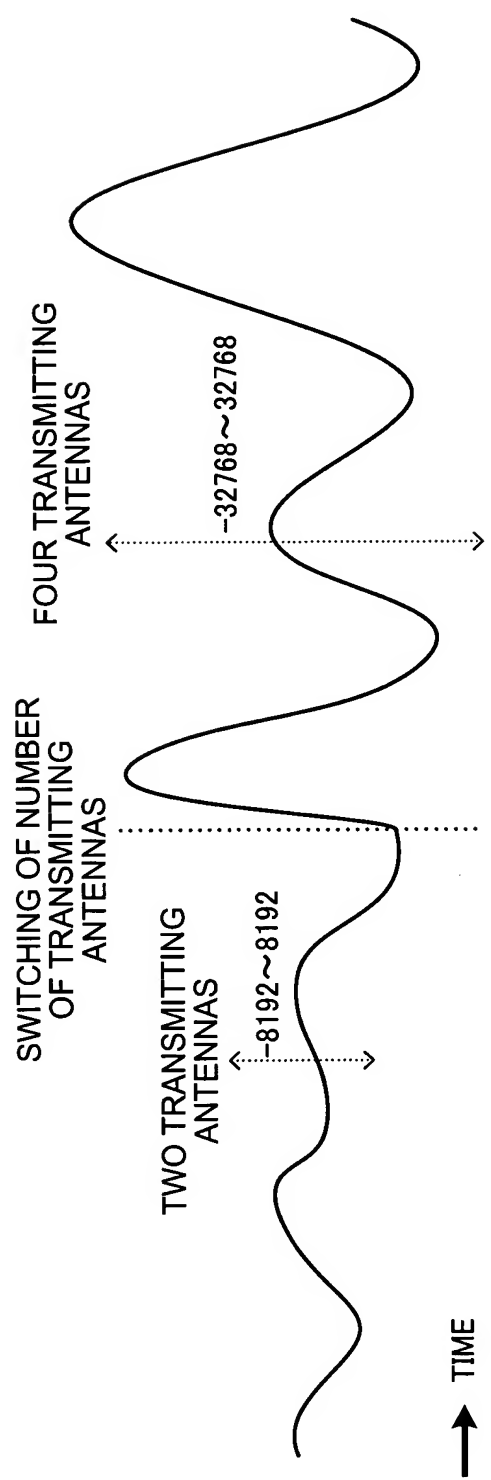


FIG.19

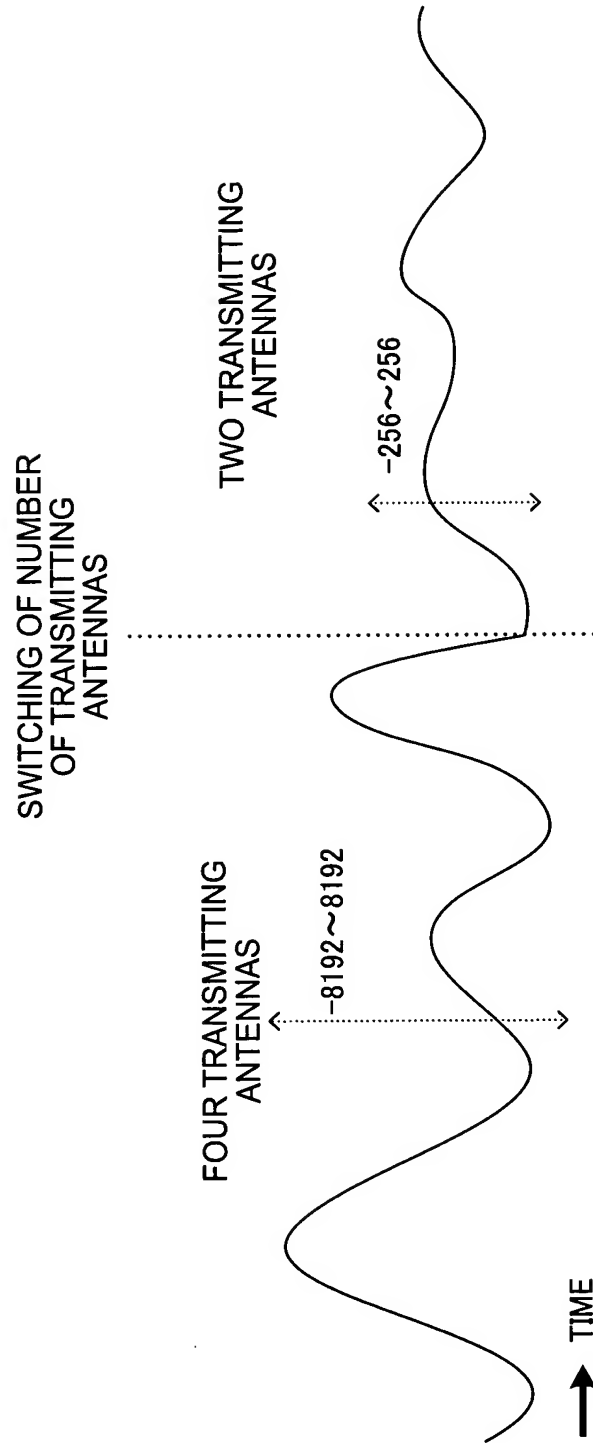


FIG.20

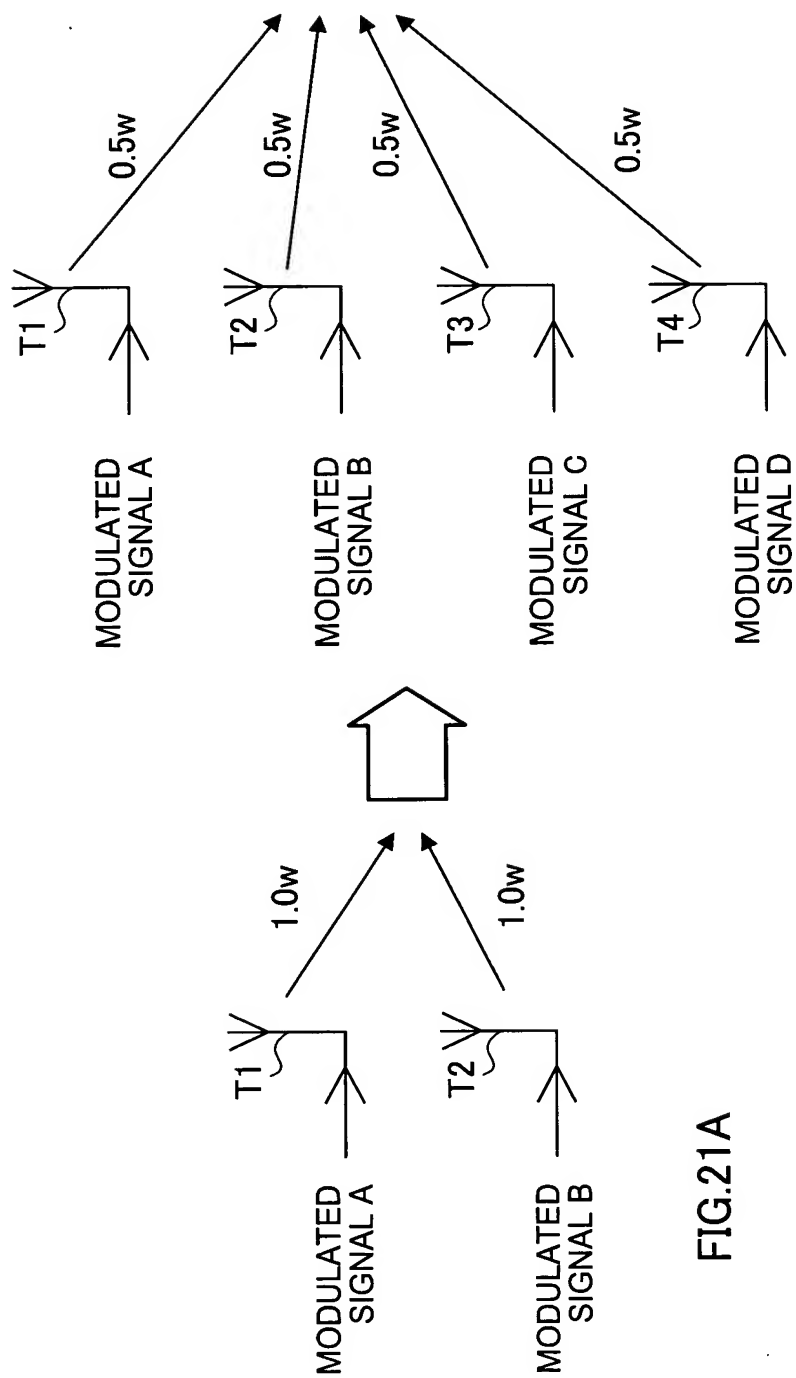


FIG.21B

FIG.21A

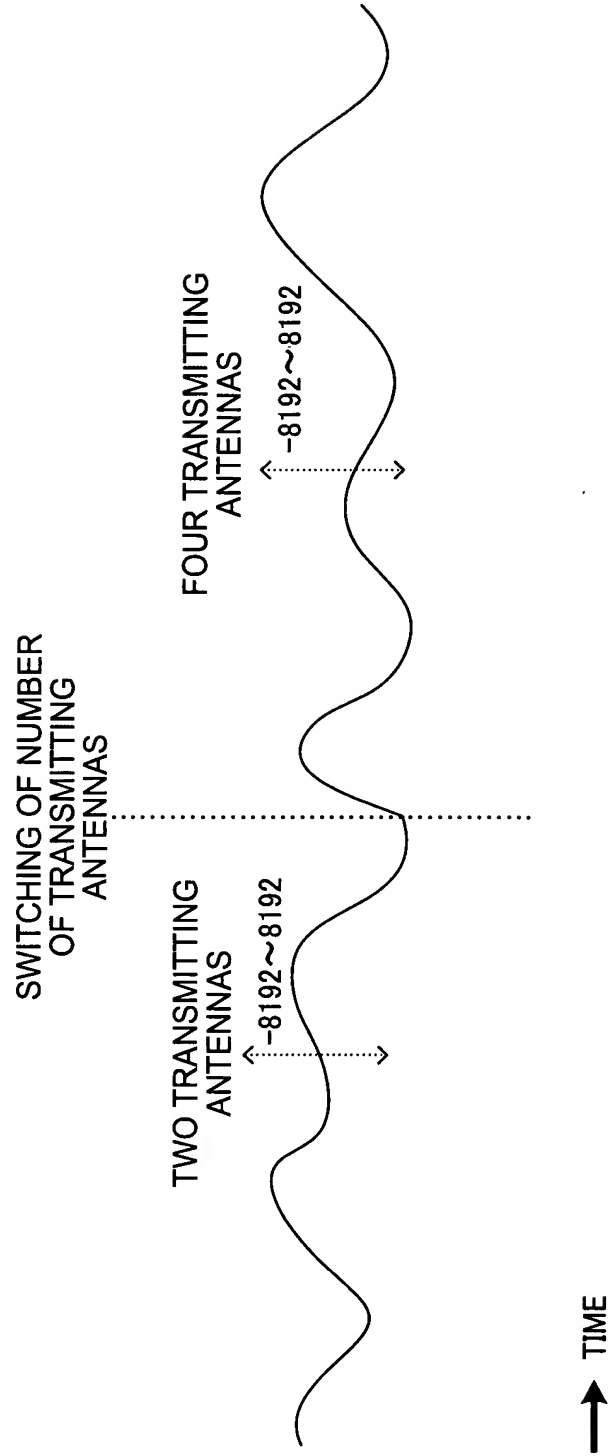


FIG.22

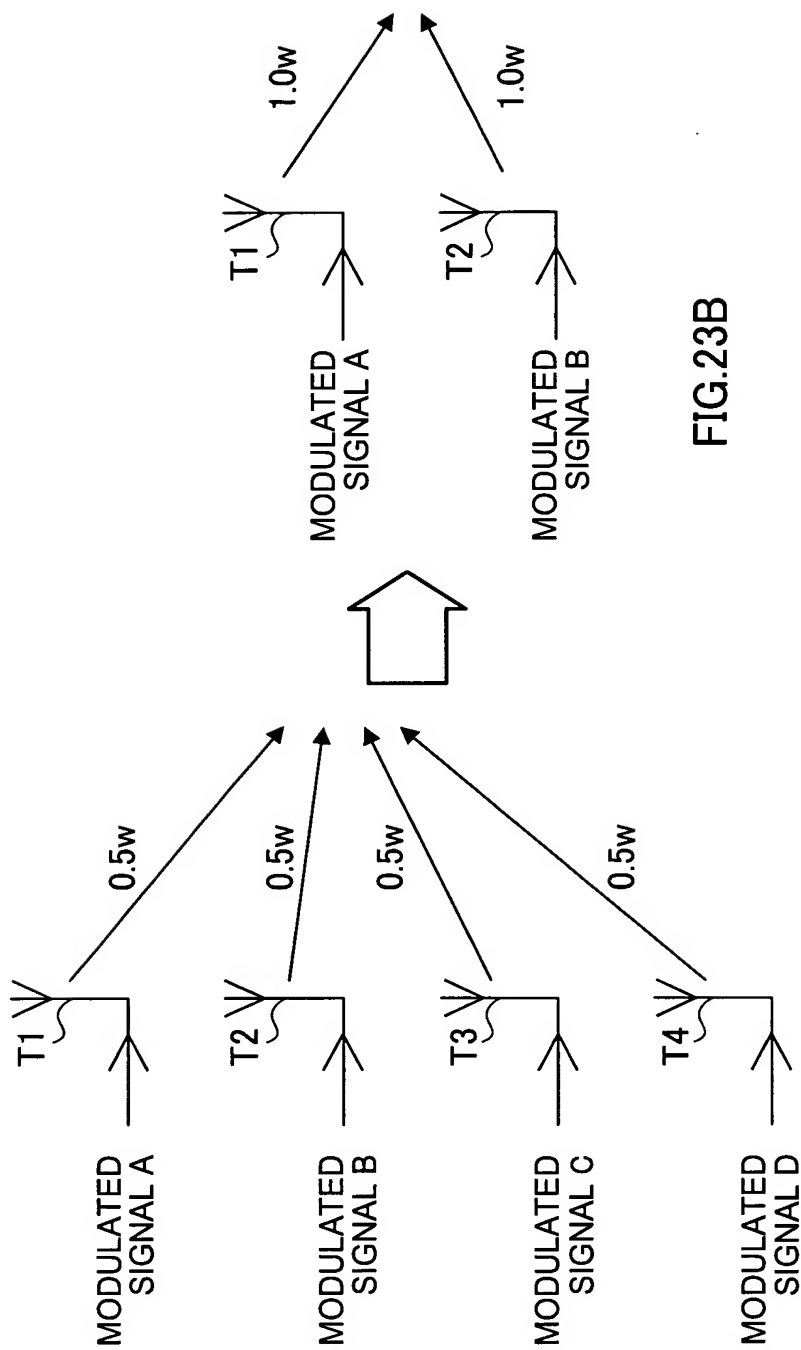


FIG.23B

FIG.23A

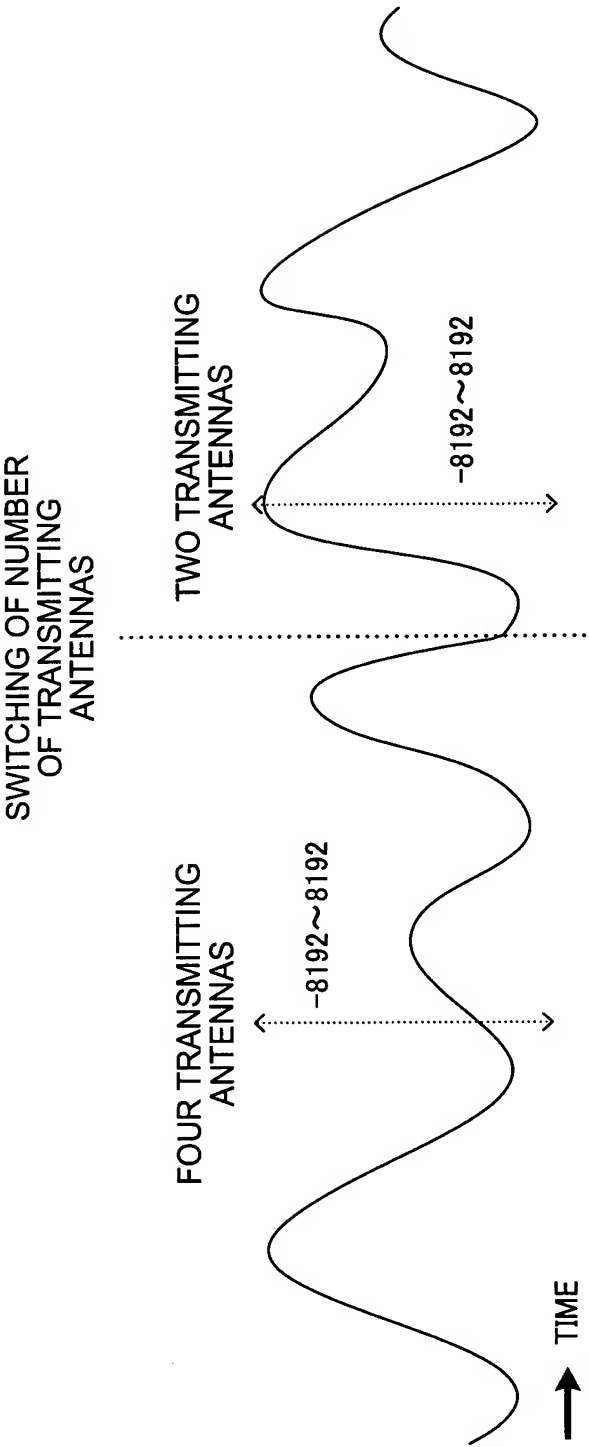


FIG.24

SWITCHING OF NUMBER OF TRANSMITTING ANTENNAS				
	TWO TRANSMITTING ANTENNAS		FOUR TRANSMITTING ANTENNAS	
TRANSMITTING ANTENNA T1	1.00W		0. 5W	0. 75W 1. 00W
TRANSMITTING ANTENNA T2	1.00W		0. 5W	0. 75W 1. 00W
TRANSMITTING ANTENNA T3			0. 5W	0. 75W 1. 00W
TRANSMITTING ANTENNA T4			0. 5W	0. 75W 1. 00W

→ TIME

FIG.25

SWITCHING OF NUMBER OF TRANSMITTING ANTENNAS				
	FOUR TRANSMITTING ANTENNAS		TWO TRANSMITTING ANTENNAS	
TRANSMITTING ANTENNA T1	0. 5W		1. 0W	0. 75W 0. 5W
TRANSMITTING ANTENNA T2	0. 5W		1. 0W	0. 75W 0. 5W
TRANSMITTING ANTENNA T3	0. 5W			
TRANSMITTING ANTENNA T4	0. 5W			

→ TIME

FIG.26

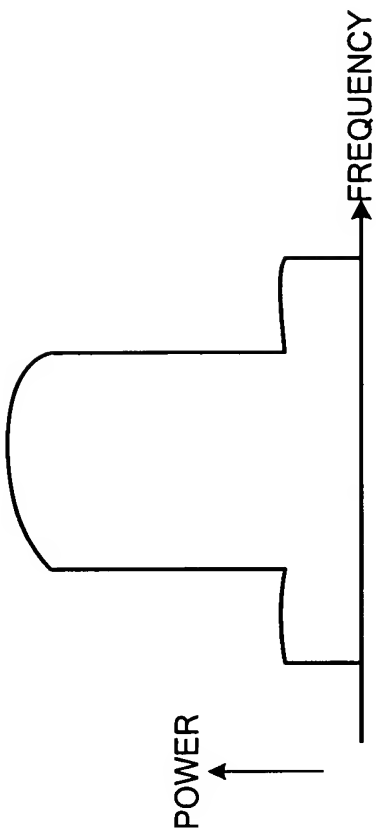


FIG.27B

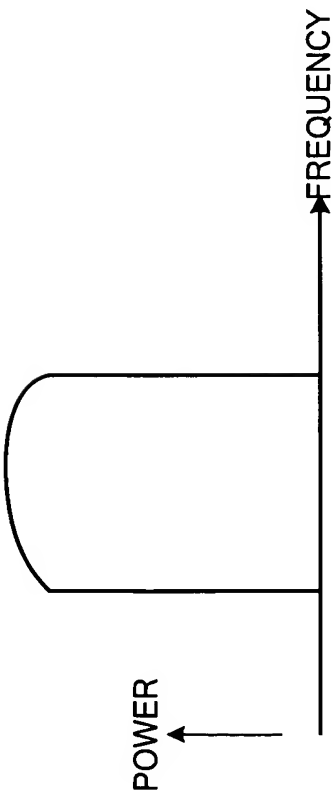


FIG.27A

700 RADIO TRANSMITTING APPARATUS

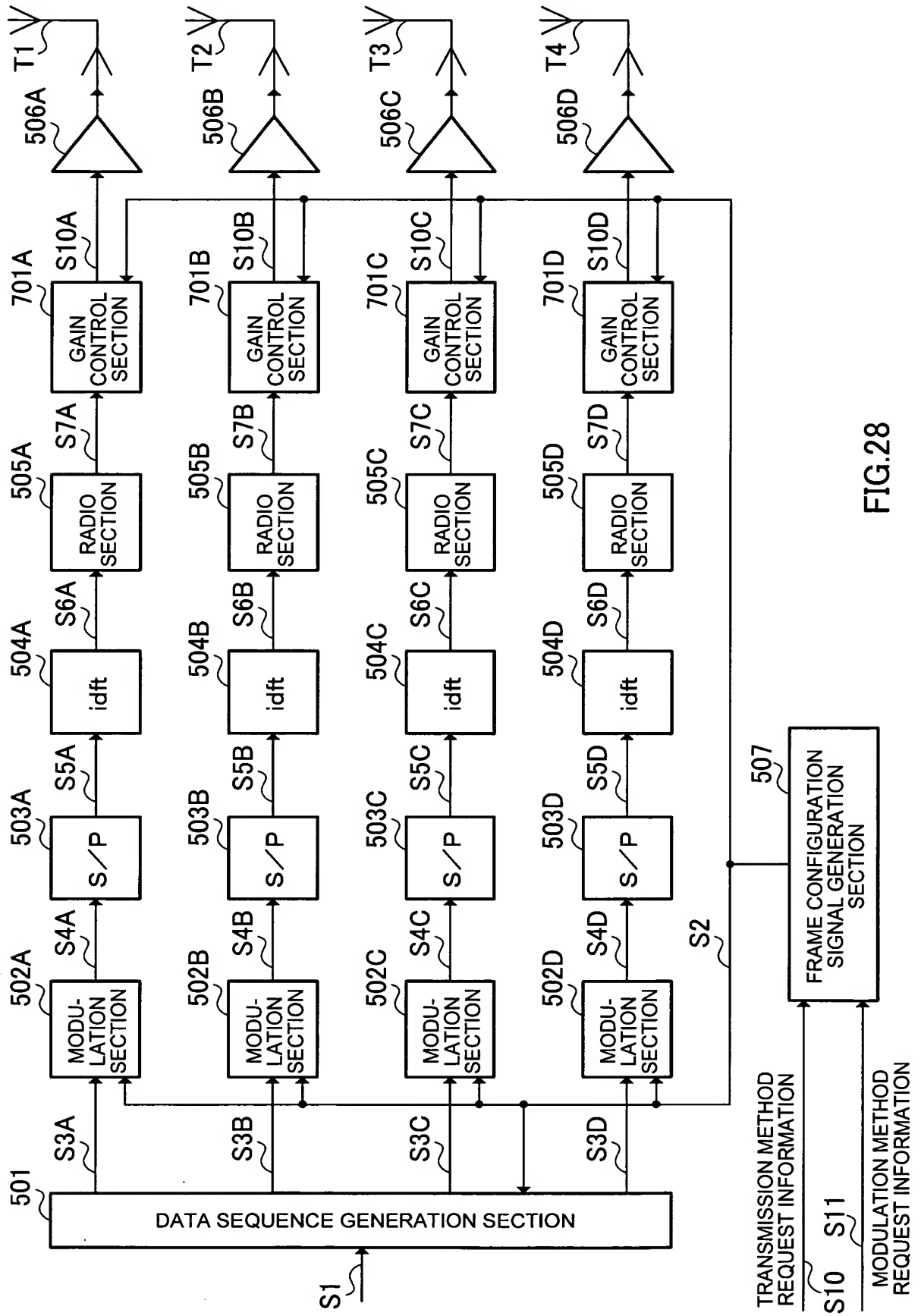


FIG.28

FIG.29A

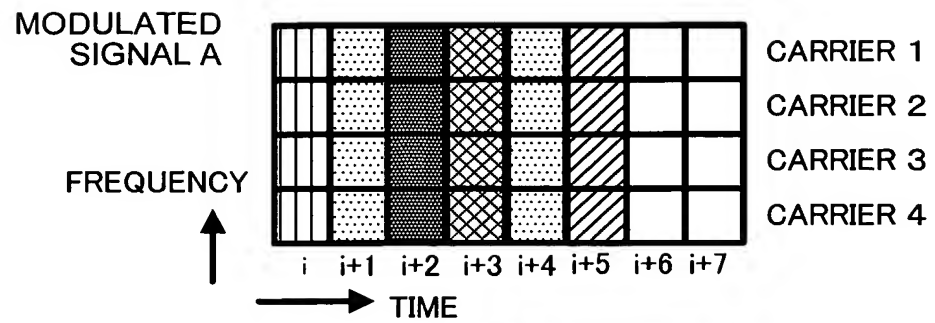


FIG.29B

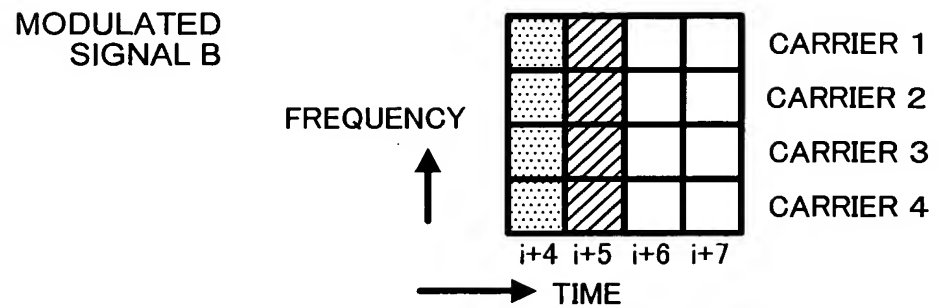


FIG.29C

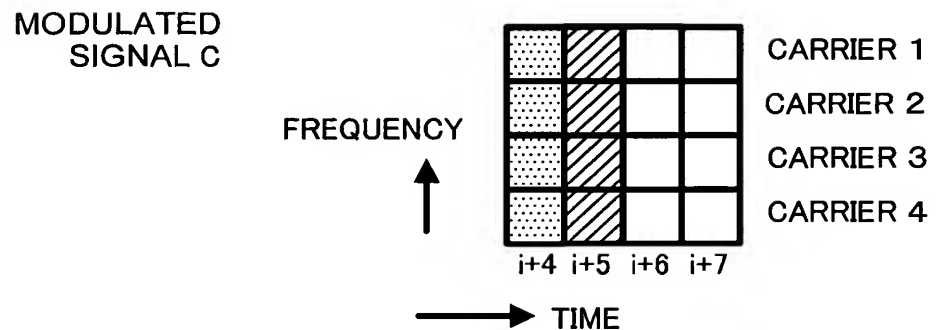
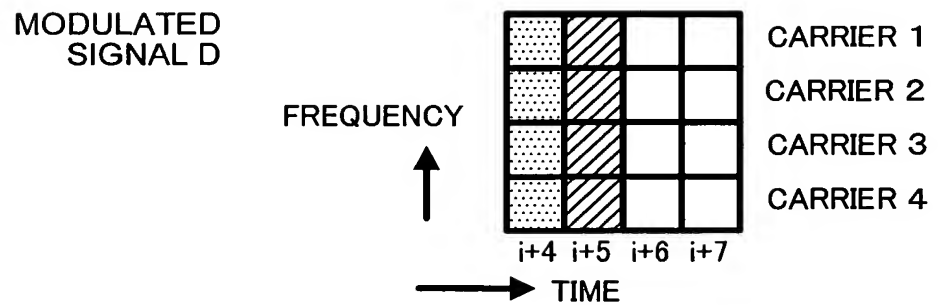








FIG.29D



-  2701: SIGNAL DETECTION SYMBOL
 -  2702: GAIN CONTROL SYMBOL
 -  2703: FREQUENCY OFFSET ESTIMATION SYMBOL
 -  2704: TRANSMISSION METHOD INFORMATION SYMBOL
 -  2705: RADIO WAVE PROPAGATION ENVIRONMENT ESTIMATION SYMBOL
 -  2706: DATA SYMBOL
- PILOT SYMBOLS

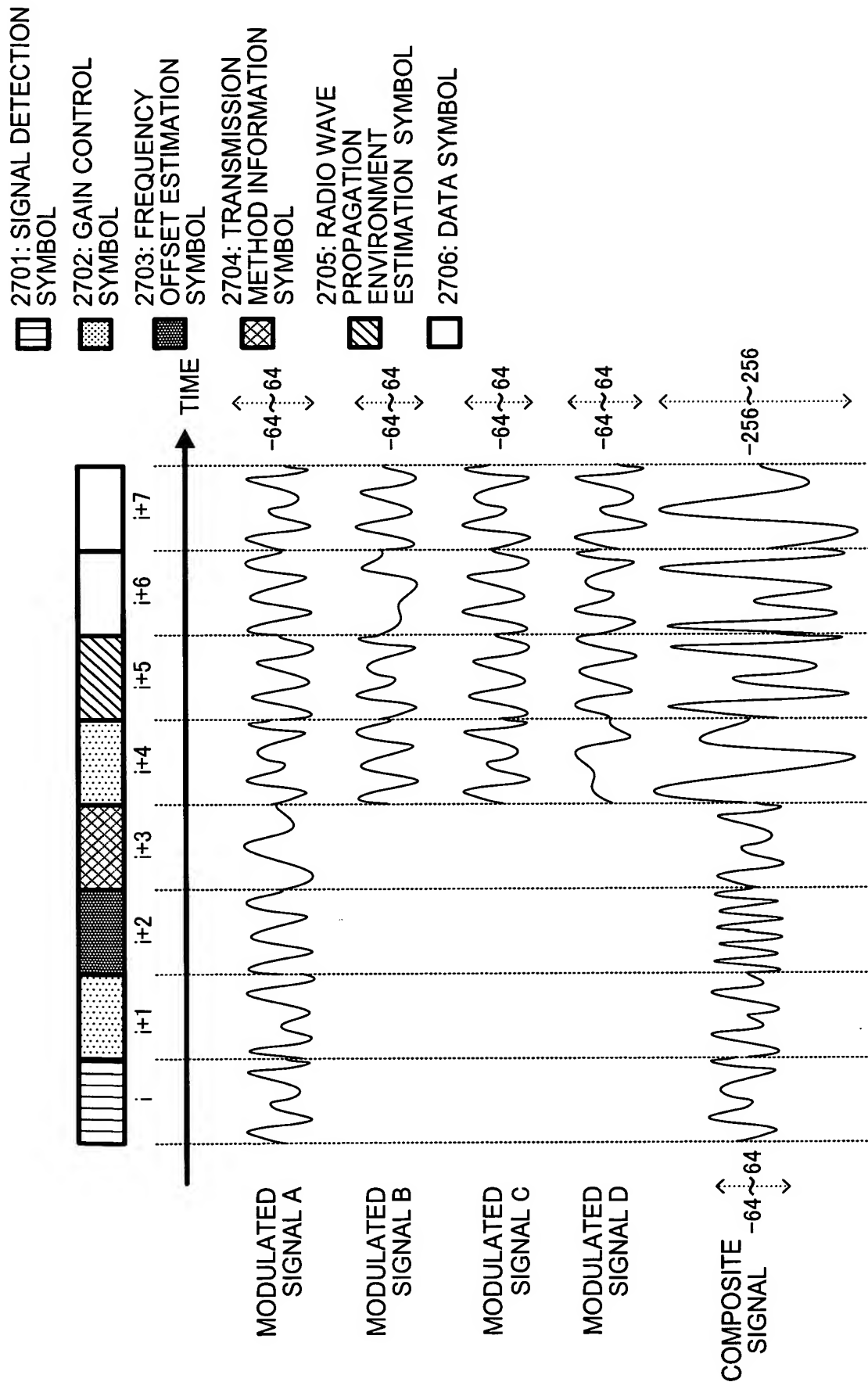


FIG.30

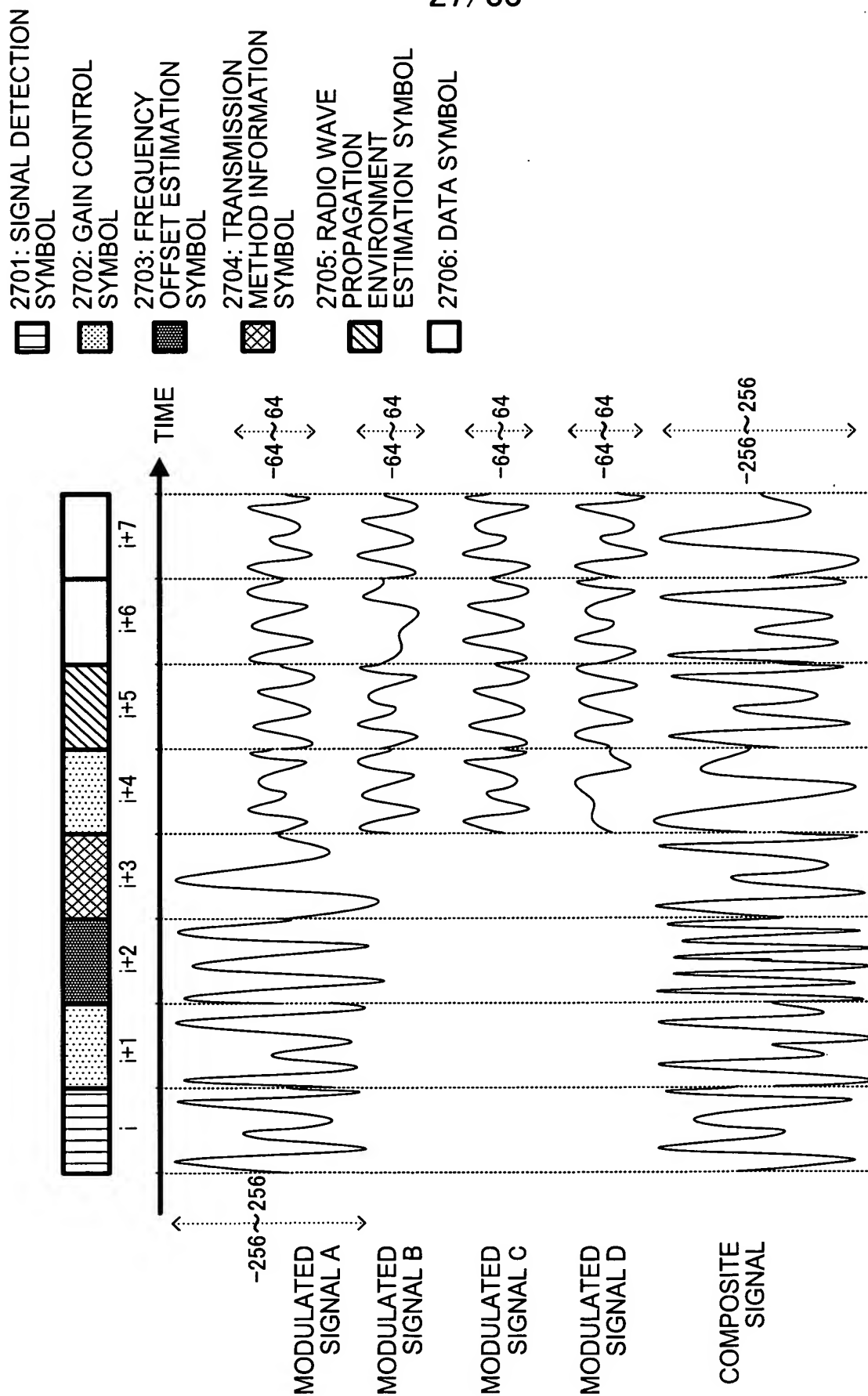


FIG.31

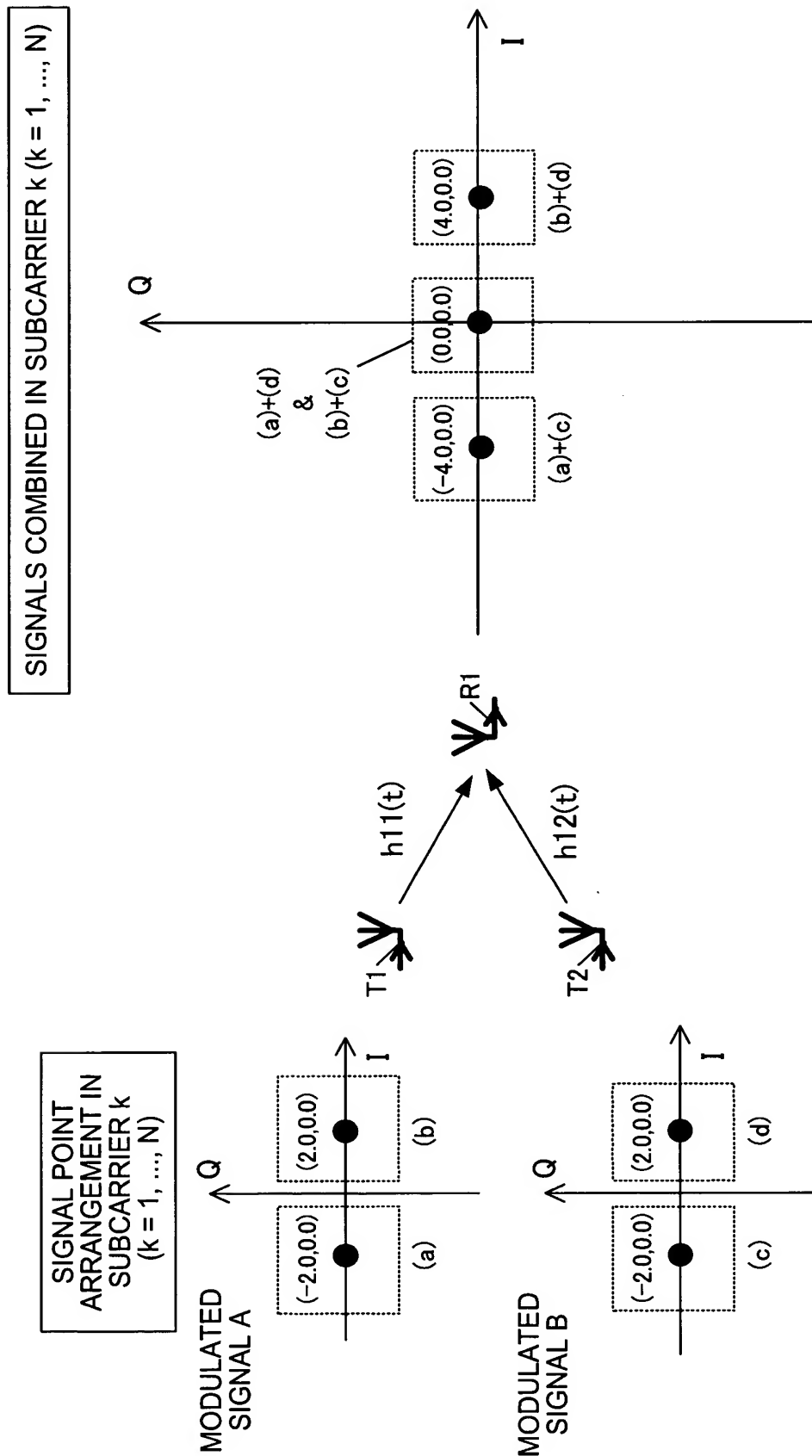


FIG.32

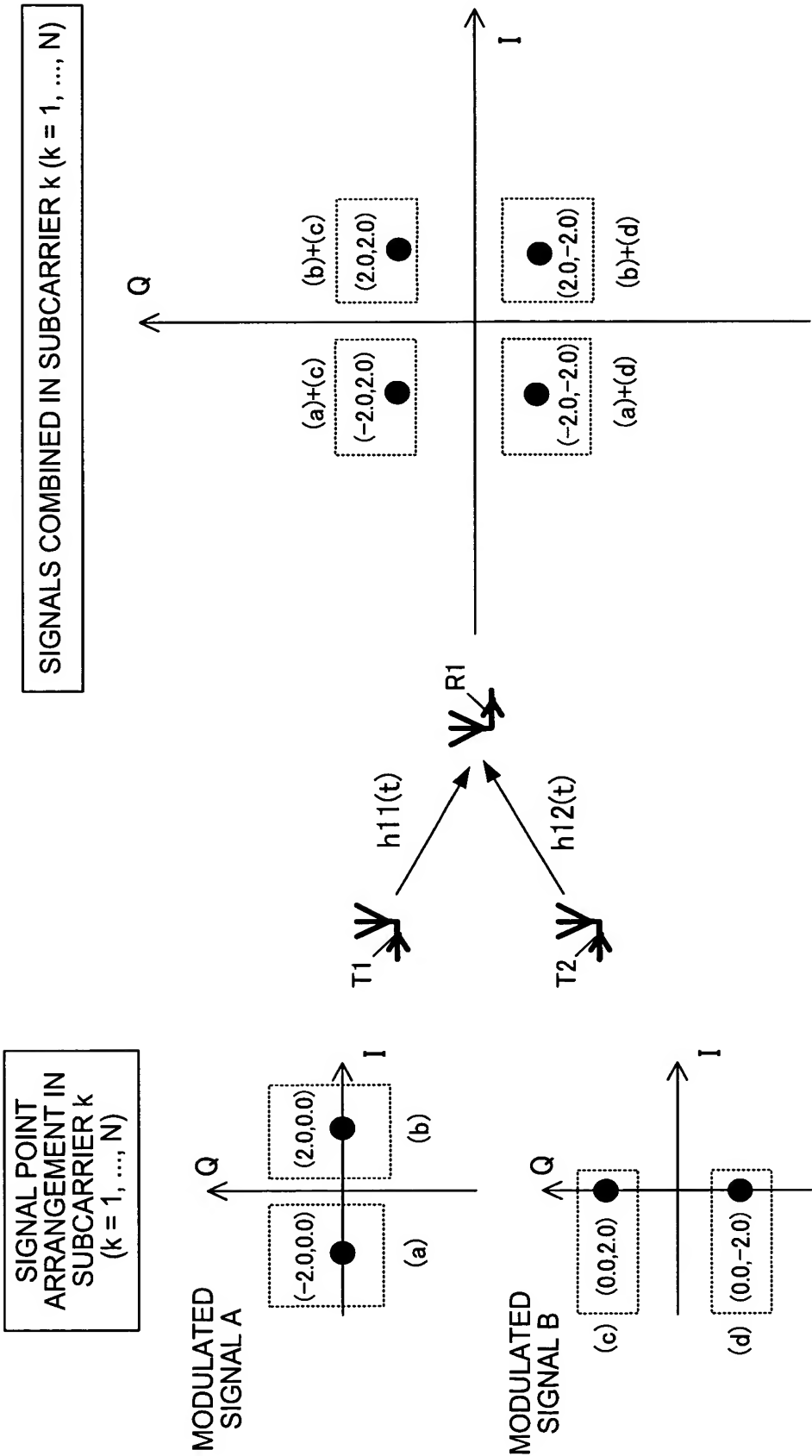


FIG.33

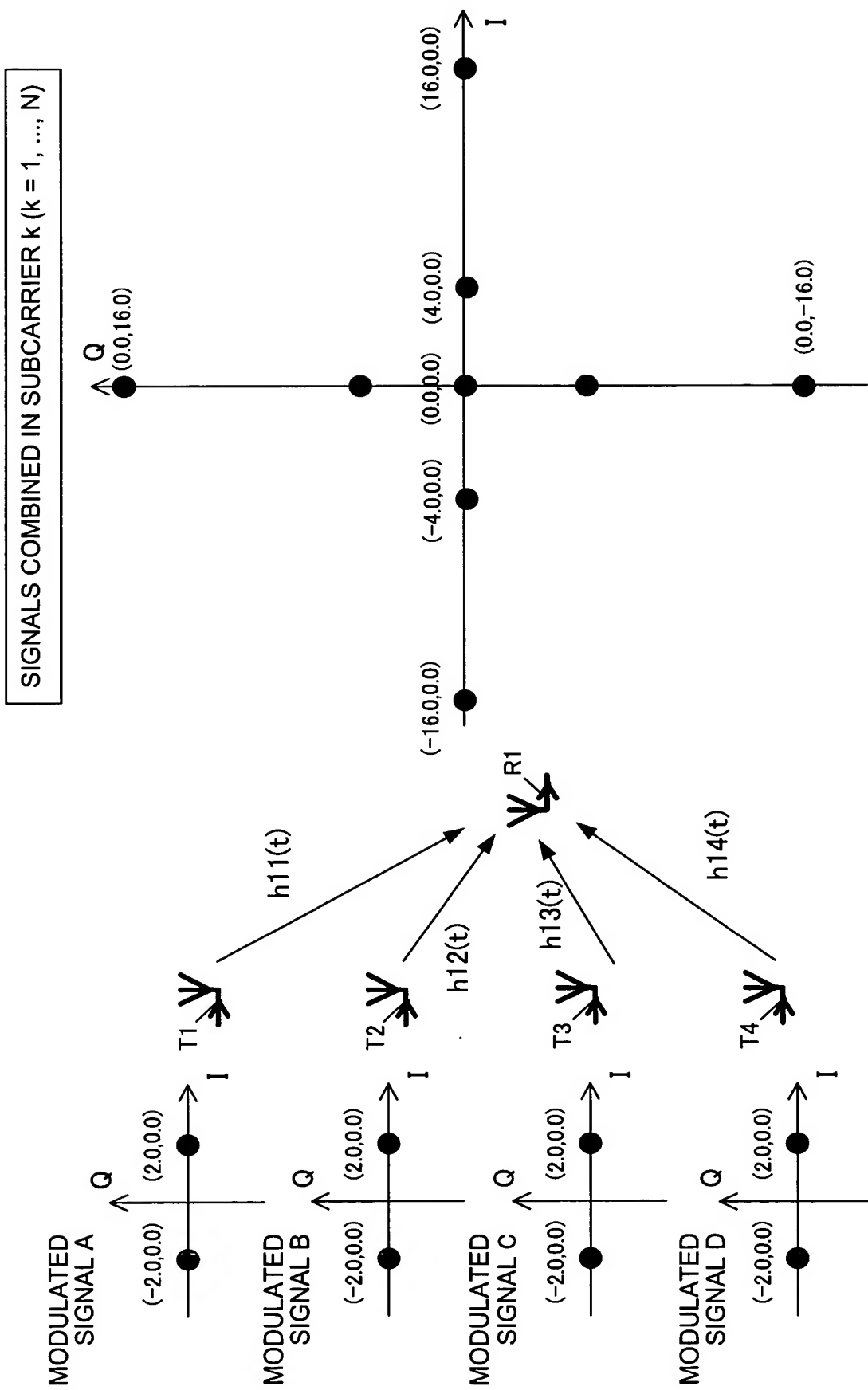


FIG.34

1 2 3 4

SIGNALS COMBINED IN SUBCARRIER k ($k = 1, \dots, N$)

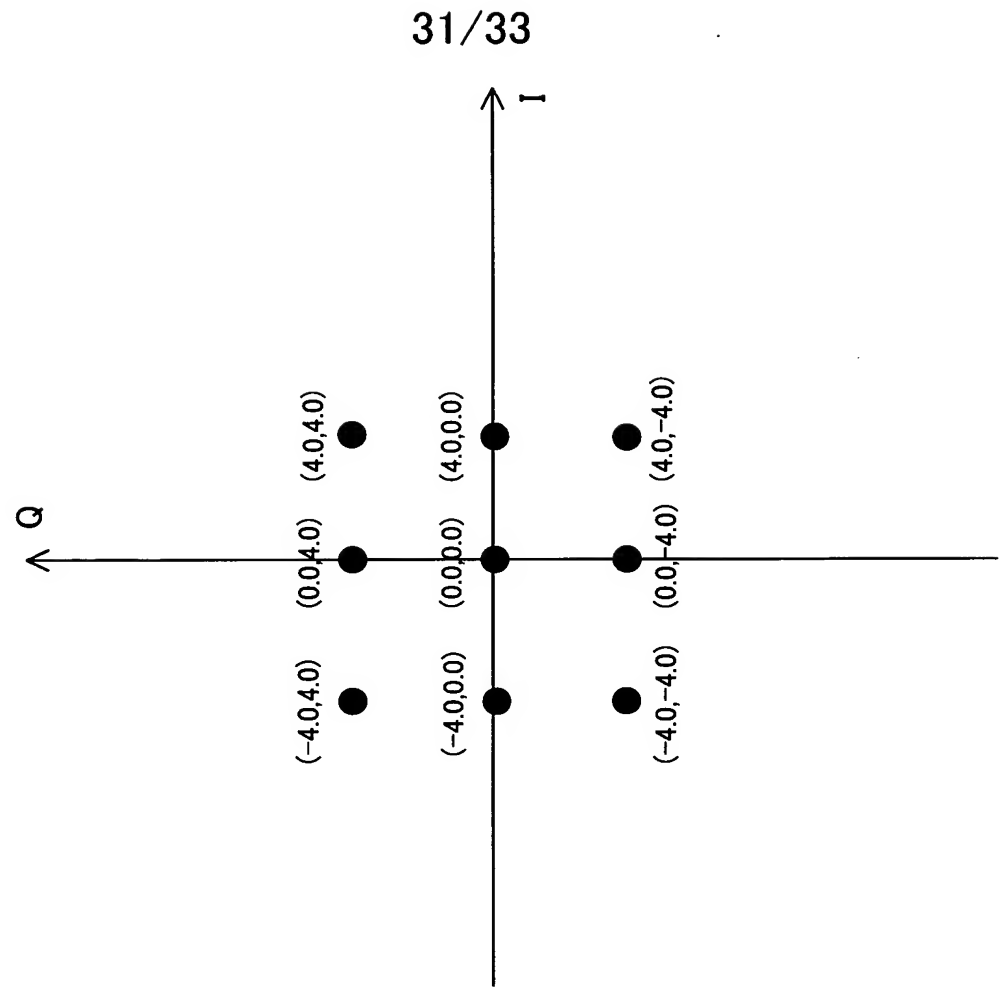
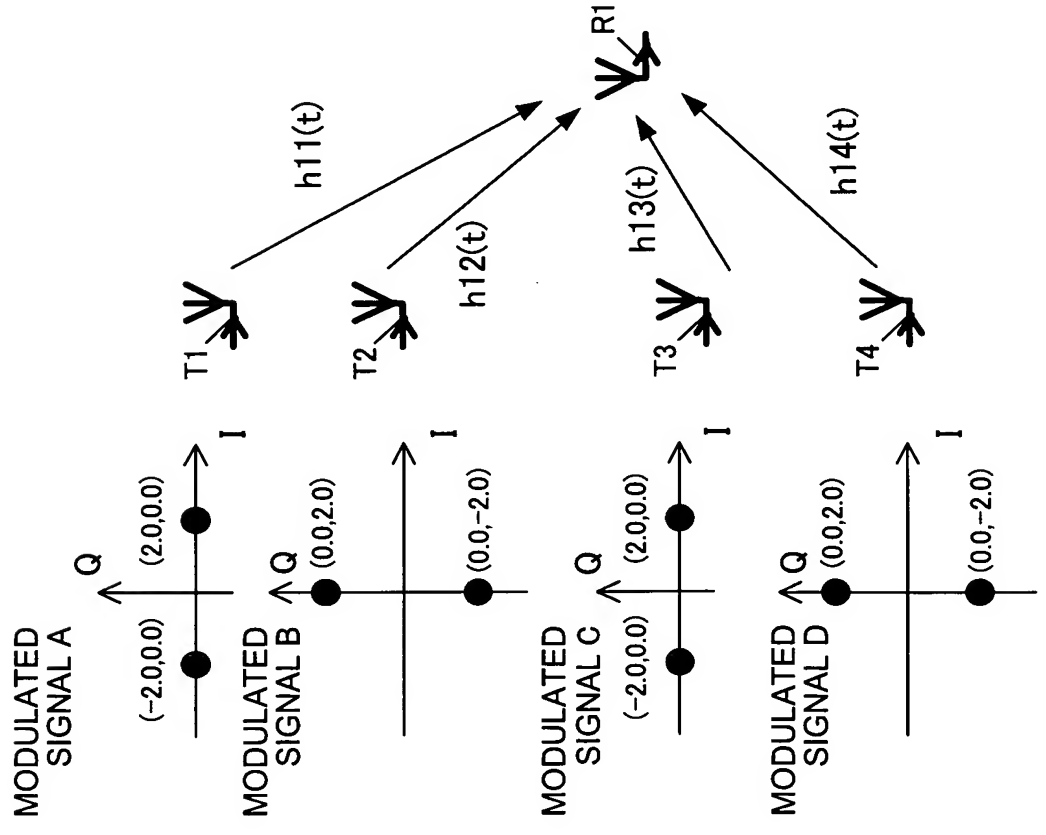


FIG.35

SIGNALS COMBINED IN SUBCARRIER k ($k = 1, \dots, N$)

SIGNAL POINT
ARRANGEMENT IN
SUBCARRIER k ($k = 1, \dots, N$)

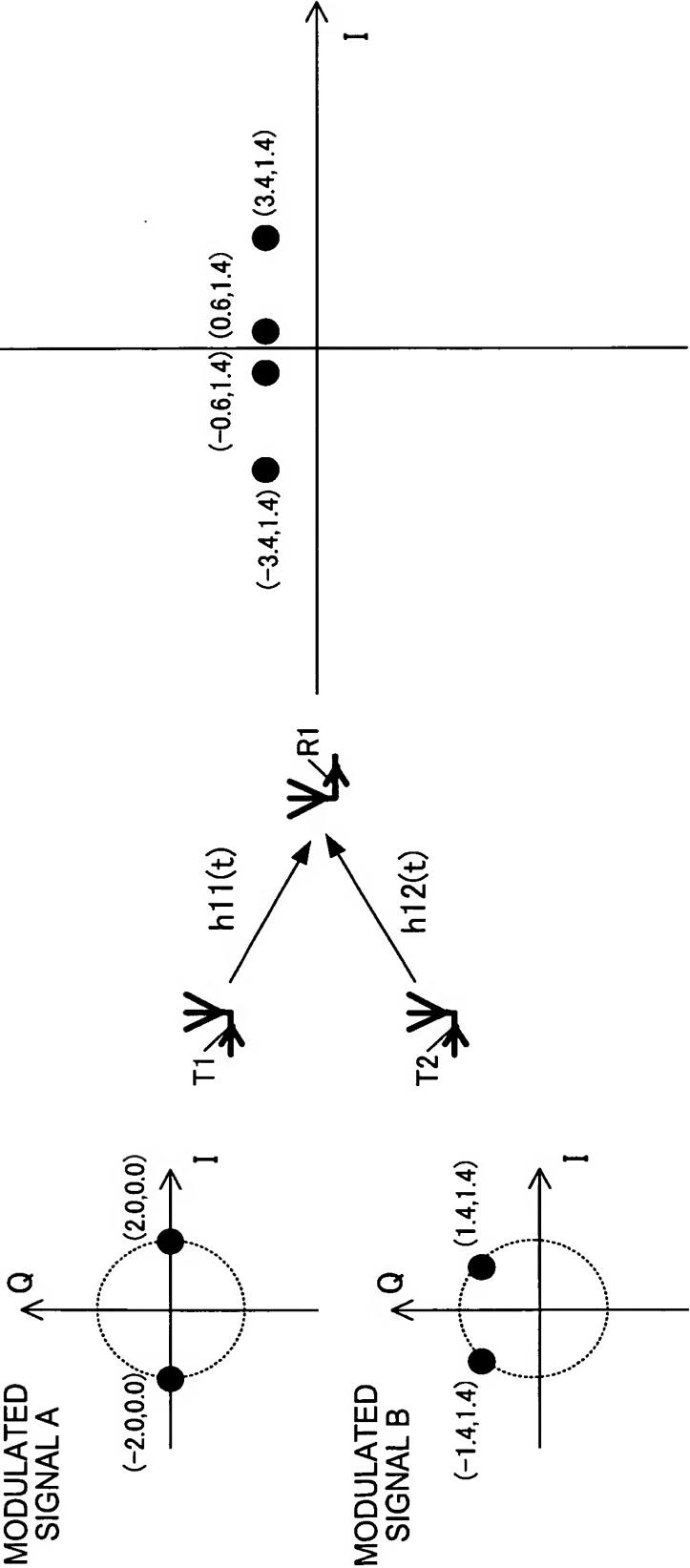


FIG.36

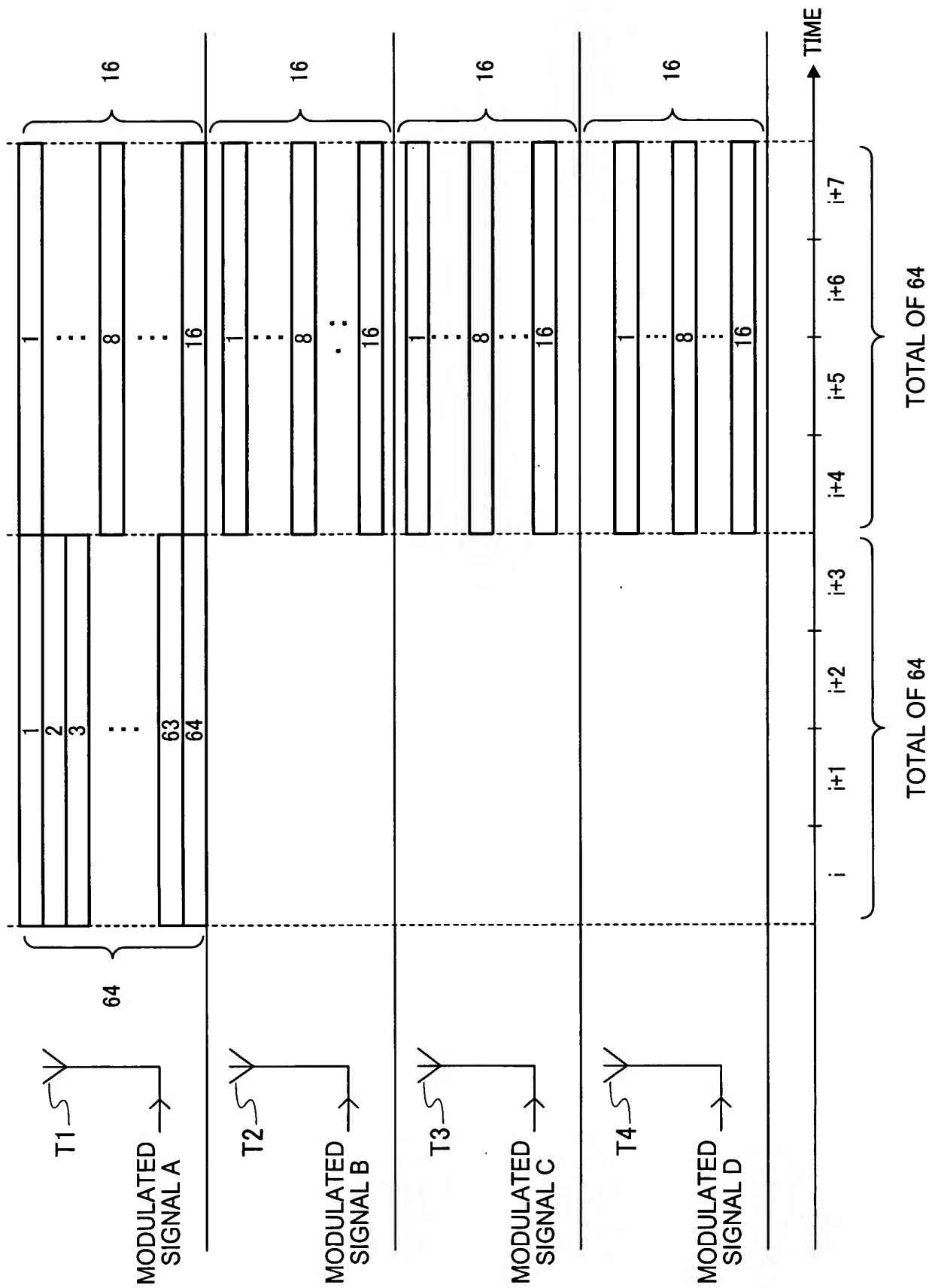


FIG.37